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XXIII. *Observations on the British Species of Bromus, with Introductory Remarks on the Composition of a Flora Britannica.* By James Edward Smith, M.D. F.R.S. P.L.S.

Read April 3, 1798.

WHEN I first found myself in possession of the herbarium; manuscripts, and library of Linnæus, several great objects presented themselves to my view, all tending to the advancement of that study to which I then, in my own mind at least, entirely devoted myself. The establishment of a Linnæan Society, and the elucidation of the plants of Great Britain, were among these objects. The success of the former, from the concurrence of talents and zeal with which it has been supported, has exceeded my most sanguine hopes: happy will it be if the other object, the attainment of which must necessarily depend more on time and personal application, should ever be as completely accomplished.

Considering the attention that has already been given to British plants, it would appear that the subject must be nearly exhausted, and that nothing could be more easy than to compile a perfect catalogue of them; such slight errors in nomenclature as already exist, being at once to be removed by turning to the Linnæan herbarium. Perhaps this might be the case if we had fewer publications

tions upon the subject already. It is in many instances easier to detect truth itself, than to trace the causes of error.

Dr. Merrett, in his *Pinax*, must be considered as the father of our indigenous botany, notwithstanding the errors of that work are such that Ray has called it "Dr. Merrett's bungling *Pinax*." It may be questioned, however, whether any of us, who presume upon a higher degree of estimation as Naturalists, if landed on an unexplored country, with only such helps as he had, would fall into fewer mistakes, or be guilty of fewer omissions. However this may be, the work of Merrett was so completely superseded by the labours of the immortal Ray, that we need in no instance recur to it as authority. The *Synopsis* of Ray, traced through its various editions, having been written from real observation, and from absolute original scrutiny of almost every British plant, is the foundation of our present knowledge of the subject. He examined every plant recorded in his work, and even gathered most of them himself. He investigated their synonyms with consummate accuracy; and if the clearness and precision of other authors had equalled his, he would scarcely have committed an error. It is difficult to find him in a mistake or misconception respecting Nature herself, though he sometimes misapprehends the bad figures or lame descriptions he was obliged to consult.

In tracing the botanical history of British plants, I therefore consider Ray as the fountain-head of authority, but it is only Ray himself. Dillenius, the highly respectable editor of the last edition of the *Synopsis*, has, with commendable modesty and diffidence, distinguished from the original work all his own additions, being well aware of the danger of mistakes. If he had not done so, the preceding edition of the work in question, published in 1696, would have been our only resource; for it cannot be concealed that Dillenius

has added several plants upon insufficient grounds, either as species or natives, and has inserted others, supposed to be new, that exist under other denominations in the original work. Indeed the changes he has made among the synonyms, not being always marked, and proving often erroneous, oblige us on that head still to consult the edition of 1696.

The *Synopsis* of Ray, as published by Dillenius in 1724, was the standard book of English Botanists, till the works of Linnæus, more simple, compendious and perspicuous, if not more free from error, than any that had before appeared, came into general use throughout Europe. England, long accustomed to take the lead in science, would have seemed so far in a state of barbarism, if her vegetable productions had remained unarranged according to the new system; and she would have been of as little importance in Natural Science as France, partly from the same cause, and partly from her dancing after the bubbles of glittering theory, has till lately been.

Dr. Hill, a ready and experienced writer, and Mr. Hudson, a more accurate and practical observer, each undertook, about the same time, to make the pupils of Ray, already become veterans in his service, submit to Linnæan discipline. Many of them found the advantage of it; some proved refractory, and are forgotten; while a multitude of new disciples, allured by the attractiveness of the new system, and the doctrines by which it was supported, have been daily advancing its utility and celebrity. The *Flora Anglica* of Hudson has, almost from its first publication, to this hour, been the classical book of English Botanists. It has been the guide and ground-work of local Floras, as the *Flora Cantabrigiensis* of Mr. Relhan, *Flora Oxoniensis* of Dr. Sibthorp, and even the *Flora Scotica* of Mr. Lightfoot; for I by no means intend to detract from the practical merit of the authors of any of those works, when I assert,  
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that they have in general adopted the synonyms of Linnæus and of Ray from the *Flora Anglica*. The work of Mr. Hudson has also been the basis of all publications besides Mr. Lightfoot's, intended to make the Botany of Great Britain accessible to those who could not read the Latin tongue, as Dr. Withering's *Botanical Arrangement*, and the vegetable part of Dr. Berkenhout's *Outlines*.

The authors just enumerated have followed the plan of Mr. Hudson himself, in applying the names, and even descriptions, in foreign authors, to the plants of Ray; an unexceptionable method if those authors were always correct, if we were certain they all spoke of the same plants under the same names, or quoted other writers without any misapprehension. This however being by no means the case, a great mass of error has been from time to time accumulating, which it requires more care and patience to remove than would be necessary to work out the whole subject afresh. Mr. Hudson commonly applies a Linnæan name to a plant, because Linnæus has quoted Ray for it, or because Haller, or Scopoli perhaps, has referred to Ray and Linnæus, while all three may chance to have intended a different species. He even copies synonyms of other authors from any of the above-mentioned, without looking at the books quoted; as may in many instances be proved by the errors of the press, and awkwardnesses of citation, which he has retained. He is however entitled to great praise for new-modelling the specific characters, when he found such as Linnæus had given did not well suit our plants, and on this ground he may rank as an original author. His descriptions also, which are original, are characteristic and valuable. Dr. Withering and Mr. Relhan, in copying descriptions from other writers, have always faithfully cited the source from which every article was derived; so that when those descriptions do not well accord, even with each

other, as it often happens, a Student may choofe between them; preferring a description of Curtis, Lyons, or Hudson, to one of Haller or Scopoli, because of the probability of the species these last writers described not agreeing with our British ones, or with those of Linnæus. Haller indeed is far from correct in his Linnæan synonyms, so that I find it dangerous to quote him without very particular reasons. But if there be so much uncertainty in compiled synonyms and descriptions, even when we are informed from whence they are derived, what shall we say to Mr. Lightfoot's plan of copying from all quarters without any acknowledgment at all? His book is made up of passages from Linnæus, Haller, Scopoli, Dillenius and Gmelin; and he is not by any means attentive to the agreement of those passages with the native plants to which he applies them. If the writer of every *Flora* would give original descriptions or characters, from real wild specimens, his work must be valuable; and on this account Dr. Withering's third edition becomes a book of first-rate authority, no descriptions being more just than his, as far as they go. For the same reason Mr. Curtis's *Flora Londinensis*, though incomplete, ought to be ranked, independent of its excellent figures, next to Ray's *Synopsis* in original merit and authority upon English plants.

With these examples before me, to shun or to imitate, I have long laboured at the *Flora Britannica*; and it is evident that, on such a plan as I have proposed to myself, it cannot very speedily be completed. By studying original specimens in the great collections at the British Museum and at Oxford, I hope to bring the synonyms nearer to perfection than they are at present, and have already cleared up many difficulties. Many of my discoveries are daily given to the world in the *English Botany*; and I appeal to their number, not from ostentation, but as an apology for not having  
more

more speedily completed my whole task, in which so many points more remain to be investigated.

By the above remarks, protracted perhaps to too great a length, I wish to introduce a botanical history of the British species of *Bromus*, a tribe of grasses which, when examined, fully justifies all I have said, and which could scarcely have been understood without a careful investigation of the old herbariums, the errors in authors being so great and unaccountable as could not be believed without such an investigation.

GENERIC CHARACTER.

BROMUS. *Linn. Gen. Pl.* 36. *Juss. Gen.* 32.

*Calyx* bivalvis. *Spicula* oblonga, disticha: *arista* infra apicem: *gluma* interior pectinato-ciliata.

All authors have found a difficulty in distinguishing this genus from *Festuca*, and some have united them. The *arista* being terminal in *Festuca*, and not so in *Bromus*, proves in most instances a sufficient character, to which I beg leave to add, that the inner glume of the corolla in *Bromus* is fringed with strong distant bristly hairs, whereas that part in *Festuca* is either smooth or finely downy. There are nevertheless difficulties attending these marks, which I shall point out hereafter.

I. BROMUS *secalinus*.

Smooth Rye Brome-grass.

B. paniculâ patente; pedunculis subsimplicibus, spiculis ovatis compressis decemfloris, flosculis distinctis teretiusculis.

*Bromus fecalinus.* Linn. Sp. Pl. 112.

*B. polymorphus* γ. Hudf. 49. var. 2. With. 159.

*B. vitiosus.* Weigel Obsf. 4. t. 1. f. 2.

*Festuca avenacea*, spicis habitioribus, glumis glabris. Raii Syn. ed. 2. 261. ed. 3. 414.

*F. graminea*, glumis glabris. Scheuchz. Agrost. 251. t. 5. f. 10.

*Gramen avenaceum* segetale majus, glumâ turgidiore. Morif. Sect. 3. t. 7. f. 16.

In arvis minùs frequentèr. Fl. Julio.

Near Edwingsford, Caermarthenshire, among the winter corn.  
Sir J. Banks, Bart. Fields in Suffex. Sir T. Frankland, Bart.

*Radix fibrosa*, annua. Culmus tripedalis, foliosus, erectus, simplex, teres, glaber. Folia linearia; supra, margineque præcipuè, pilosa; subtus scabra. Vagina læviuscula. Stipula brevis, erosa, pilosa. Panicula vix femipedalis, patens; ramis semi-verticillatis, rectiusculis, angulatis, scabris, longitudine inæqualibus, plerumque simplicibus unifloris. Spiculæ ovatae, ferè ellipticæ, compresso-planæ, flosculis 9 ad 12, basi remotis, unde rachis flexuosa, glabra, tota in conspectum venit. Calyx inæqualis, muticus, glumis ellipticis, glabris, trinerviis, margine membranaceis. Flosculi teretiusculi, glabri (rariùs pubescentes), albedo-virescentes, nitidi; gluma exterior elliptica, turgida, nec depressa, obsoletè septemnervia, margine apicem versùs parùm membranacea, sub apice aristata; arista rectiuscula, scabra, glumâ brevior; gluma interior longè angustior et tenuior, concava, mutica, margine pectinato-ciliata. Semen cylindricum, supra fulco exaratum.

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This species is not very common. It may easily be known by its broad oval compressed spikes, each consisting of not more than 10 or 12 cylindrical rather remote florets, almost always smooth, and drooping as they ripen from the length of their foot-stalks, which are for the most part quite simple.

2. *BROMUS multiflorus.*

*Downy Rye Brome-grass.*

*B. paniculâ patente; pedunculis subsimplicibus, spiculis ovato-lanceolatis compressis quindecimfloris, flosculis subimbricatis teretiufculis.*

*Bromus multiflorus. Weigel Obs. 2. t. 1. f. 1. Gmel. Syst. Nat. Linn. 188.*

*B. fecalinus. Leers 36. t. II. f. 2. Lightf. 1086. Linn. Fl. Suec. ed. 2. 96. var. 2.*

*Festuca graminea, glumis hirsutis. Baub. Theatr. 143. Scheuchz. Agr. 250. t. 5. f. 9.*

In arvis rariùs. *Dill. in R. Syn. 414. Fl. Julio.*

Near Norwich. *Miss Hancock.* Between Edinburgh and Newliaven.

*Habitus præcedentis. Culmus glaber. Folia inferiora subtus nuda, supra ad margines subpilosa; superiora subtus brevi lanugine pubescentia, supra pilosa; omnia margine scabra. Vagina glabra. Stipula brevissima, lacera, vix pilosa. Panicula ut in priore. Spiculæ unciales, ovato-lanceolatæ, compresso-planæ, flosculis 12 ad 16, imbricatis, demùm subremotis. Glumæ omnes plerumque mollissimè pubescentes, rariùs glabræ.*

There is certainly great affinity between this species and the preceding, and they have been accordingly confounded, not only by Scopoli and Hudson, who have united several more distinct species into one, under the name of *polymorphus*, but also by most other authors. Scheuchzer and the accurate Weigel have however distinguished them, and the characters above given seem sufficient. The *B. multiflorus* has more numerous florets, more closely set, and more frequently downy, though not invariably so. Both kinds, with smooth glumes, are confounded in the collections of Buddle and Sherard, under the synonym of Ray which belongs to the former; as they are in the herbarium of Bobart under *Morif. Sect. 8. t. 7. f. 16*; but in the last-mentioned the glumes of *B. multiflorus*, though not downy all over, are rough on the keel.

3. *BROMUS mollis.**Soft Brome-grass.*

*B. paniculâ erectâ coarctatâ; pedunculis ramosis, spiculis ovatis, flosculis imbricatis depressis nervosis pubescentibus.*

*Bromus mollis.* *Linn. Sp. Pl.* 112. *Curt. Lond. fasc. 1. t. 8. Mart. Fl. Rust. t. 99. Relb. 44. Sibth. 47. Leers 37, t. 11. f. 1. Weigel Obs. 7. t. 1. f. 4. Schreb. Gram. 60. t. 6. f. 1, 2.*

*B. Linn. Hort. Cliff. 25, ex Herb. Cliff.*

*B. polymorphus*  $\alpha$ . *Huds. 48. var. 1. With. 159.*

*B. hordeaceus.* *Linn. Sp. Pl. ed. 1. 77.*

*B. n. 1504. Hall. Hist. V. 2. 236.*

*Festuca avenacea hirsuta, paniculis minus sparsis. Raii Syn. 413.*

*Gramen avenaceum pratense, glumâ breviorē squamosâ et villosâ. Morif. Sect. 8. t. 7. f. 18.*

 $\beta$ . *Bromus.*

β. Bromus nanus. Weigel Obs. 8. t. 1. f. 9. Herb. Linn.

In muris, aggeribus et pascuis vulgaris. Fl. Junio.

*Radix* fibrosa, parùm ramosa, albida, biennis. *Culmus* erectus, bipedalis, simplex, teres, striatus, sæpiùs glaber, subindè pubescens, geniculis tumidis, quandoque hirsutis. *Folia* (ut et vaginæ) striata, pilis mollibus canescentibus villosa, margine vix scabra. *Stipula* acutiuscula, lacera. *Panicula* bi- vel tri-uncialis, erecta, coarctata, demùm patentiuscula, decomposita; ramis semiverticillatis, simplicibus racemosisque, longitudine variis, angulatis, pubescentibus. *Spiculæ* erectiusculæ, ovatæ, acutæ, parùm compressæ, flosculis 5 ad 10, arctè imbricatis. *Calyx* e glumis duabus, inæqualibus, ellipticis, mucronatis, margine scariosis, carinatis, villosis, 7-9 nerviis, nervis viridibus, validis, extantibus. *Flosculi* calyci conformes, depresso-concavi, aristis scabris longitudine valvularum; *glumæ interiores* tenuissimæ, longèque angustiores, enerviæ, margine incrassato, viridi, ciliato. *Semen* ellipticum, depresso-planum.

Nothing can be more distinct than this common *Bromus* from the two already mentioned. Its compound dense panicle, and its strongly-ribbed, depressed, closely imbricated glumes, at once distinguish it. Few plants vary more as to luxuriance. The *B. nanus* of Weigel, sent by himself to Linnæus, is a starved dwarf variety, with few spikes in the panicle, as it often grows on walls. The same is in Buddle's herbarium.

We are certain from the Cliffortian herbarium, now fortunately in Sir Joseph Banks's hands, that this is the only *Bromus* mentioned in the *Hortus Cliffortianus*, though the synonyms there imply several

other species, and Linnæus afterwards quoted that work for *B. arvensis*. So necessary is the comparison of original specimens!

I think there can be no doubt of Scheuchzer's *Gr. avenaceum*, *locustis villosis, angustis, candicantibus et aristatis*, *Agr. 254. t. 5. f. 12*, being our *B. mollis*; though I have seen no specimen under his own hand, and therefore would not quote him.

#### 4. *BROMUS racemosus.*

##### *Smooth Brome-grass.*

*B. panicula erectiuscula diffusa; pedunculis simplicibus, spiculis ovatis sexfloris, flosculis imbricatis depressis nervosis glabris.*

*Bromus racemosus.* *Linn. Sp. Pl. 114.*

*B. polymorphus*  $\beta$  et  $\delta$  *Huds. 49. var. 3 & 4. With. 160.*

*Festuca avenacea, spicis strigosioribus, è glumis glabris compactis.*

*Raii Syn. ed. 2. 261. ed. 3. 414.*

*Gramen avenaceum pratense, gluma tenuiore glabra.* *Dill. in Raii Syn. ed. 3. 414.*

*G. avenaceum pratense, gluma squamosa longiore glabra.* *Morif. Sect. 8. t. 7. f. 19. Herb. Bobart.*

*G. avenaceum hirsutum annuum, paniculâ ampliore magisque sparsâ locustis crassioribus glabris et aristatis.* *Till. Pis. 74. Herb. Sberard.*

*G. loliaceum alpinum, spicâ exili, rarioribus locustis.* *Ponted. Comp. 46. Herb. Sberard.*

*In pratis et pascuis. Fl. Junio.*

*At Holkham, Norfolk. Mr. Crowe. Northamptonshire. Mr. Dickson.*

Præcedente

Præcedente toto habitu gracilior. Radix annua. Culmus ferè tripedalis, glabriusculus. Folia utrinque pilosa, margine parùm scabra. Vaginæ pilis plerumque deflexis hirsutæ. Panicula rara, diffusa (nec coarctata), simplex, pedunculis femiverticillatis, scabris, elongatis, indivisis, vix unquam bifloris. Spiculæ præcedentis, at glaberrimæ, vix septemfloræ, nitidæ, viridi alboque vittatæ, nervis minùs prominentibus, aristas scabris longitudine valvularum.

Linnæus described this species from an English specimen, less luxuriant than usual, and therefore more strictly racemose. The name however may be retained in allusion to the simple structure of the panicle. Even in the very luxuriant specimen, sent by Tilli to Sherard, the foot-stalks are mostly simple and single-flowered, by which, and the constant smoothness of its glumes, it may certainly be distinguished from *B. mollis*.

We have under this grass an instance of Dillenius's having inserted, as a new species, into his edition of the *Synopsis*, what existed there well defined already, for his is not even a variety of Ray's plant.

Dr. Withering, by an error totally unaccountable to me, quotes Mr. Afzelius as saying that "the *B. fœcalinus*, *hordeaceus* and *racemosus* are the same plant in the Linnæan herbarium, and that they are all varieties of *B. mollis*." This excellent Botanist must have spoken from recollection, and his memory deceived him, as any one may easily be convinced by looking at the specimens. Nor is this the only error of the same kind, which, without my participation or knowledge, has glided into the work of my intelligent and liberal friend, to whom I should have been happy at all times to have directly communicated all the information that might be consistent with my own undertakings, which I know to be all he would ever desire.

5. BROMUS *squarrosus.**Corn Brome-grass.*

B. paniculâ nutante; pedunculis simplicibus, spiculis ovatis duodecim floris, flosculis imbricatis depressis, aristis divaricatis.

*Bromus squarrosus.* Linn. *Sp. Pl.* 112. Hudf. 49. With. 160. Villars *Dauph. V.* 2. 115.

*Festuca graminea*, glumis vacuis. Scheuchz. *Agr.* 251. t. 5. f. 11.

*Gramen phalaroides majus acerosum*, nutante spicâ. Barrel.  *Ic.* t. 24. f. 1.

In arvis Angliæ australiores. Hudf. Fl. Julio.

*Radix* fibrosa, parva, annua. *Culmus* pedalis, simplex, glaber, striatus, foliosus. *Folia* et *vaginæ* pubescunt, villis brevissimis deflexis. *Panicula* pauciflora, pedunculis secundis, simplicibus, compressis, apice incrassatis. *Spiculæ* omnium maximæ, ovatæ, tumidæ, nitidæ, flosculis 12 ad 16, arctè imbricatis, depresso-concavis, glabris, subinde scabriusculis. *Calyx* inæqualis, nervosus, muticus. *Glumæ corollinæ exteriores* calyce parùm majores, multinerviæ, apice bipartitæ, aristis subulatis, scabris, recurvato-divaricatis, longitudine glumarum; *valvulæ interiores* longè minores, ciliis raris pectinatæ. *Semen* ellipticum, depresso-concavum, corollæ adnatum, apice villosum.

This description is taken from several very excellent specimens in the Linnæan collection, for I have never seen any of British growth. It owes its place, therefore, in the list of English plants, entirely to Mr. Hudson, as Dr. Withering also remarks, and I am not without a suspicion of his having mistaken the true *B. secalinus* for this species.

## 6. BROMUS

6. BROMUS arvensis.

Field Brome-grass.

B. paniculâ patente; pedunculis ramosis, spiculis lanceolatis octo-  
floris, flosculis ellipticis imbricatis depressis glabriusculis.

Bromus arvensis. *Linn. Sp. Pl.* 113. *Fl. Suec. n.* 97. *With.* 162.

*Leers* 38. t. 11. f. 3. *Villars Dauph. V.* 2. 116.

B. erectus  $\beta$  *Huds.* 50?

Festuca elatior, paniculis minùs sparsis, locustis oblongis strigosis  
aristatis purpureis splendentibus. *Raii Syn. ed.* 2. 261. *ed.* 3.  
414. *Herb. Sherard.*

F. graminea, effusâ jubâ. *Scheuchz. Agr.* 262. t. 5. f. 15.

F. avenacea sterilis elatior. *Rel. Rudb.* 15. f. 2.

Aegilops major, caule et foliis arundinaceis, locustis glabrioribus et  
angustioribus e fusco xerampelinis. *Dill. Giff.* 130. *App.* 60.  
*Herb. Sherard.*

Gramen bromoides ferotinum annuum, paniculâ rariore magisque  
sparsâ, locustis angustioribus, purpurascens, glabris et  
aristatis. *Till. Pif.* 76. *Herb. Sherard.*

Inter fegetes rariùs. Fl. Julio.

Near Southampton. *Sherard.* At Earsham, Norfolk. *Mr.*  
*Woodward.*

Radix fibrosa, parva, annua. Culmus tripedalis, erectus, simplex  
(basi quandoque ramoso-luxurians), teres, striatus, glaber, foliosus,  
geniculis quatuor vel quinque. Folia patentia, acuta, striata,  
utrinque pubescentia; margine parùm scabra, longiùs vaginata.  
Vaginæ cylindricæ, nervosæ, molissimè pubescentes, pilis deflexis.

Stipula brevissima, lacera. Panicula erectiuscula, multiflora, ramis

patentibus, numerosis, simplicibus et ramosis, scabris. *Spiculæ* ovato-lanceolatae, erectiusculæ, demùm nutantes, nitidæ, purpureo varix, plerumque glabræ, subinde oculo armato pubescentes. *Glumæ calycineæ* valdè inæquales, lanceolatae, acutæ, carinatae, nervosæ, margine membranaceæ. *Flosculi* 7 ad 10, arctè imbricati, elliptici, depresso-concavi, carinâ scabri, margine membranacei, nervis duobus approximatis longitudinalibus lateralibus; aristis glumâ plerumque longioribus, parùm infra apicem membranaceum e carinâ elongatâ exortis, rectis, subulatis, scabris: *glumæ interiores* minores, enerviæ, obtusæ, muticæ, margine pectinatae. *Semen* apice villosum.

There is some doubt whether Mr. Hudson really knew this grass, or whether what he took for *B. arvensis* of Linnæus is merely a variety, as he made it, of his *B. erectus*; and this point can never be determined. The two species have less resemblance or affinity than most other *Bromi*, and could surely never be confounded.

7. *BROMUS erectus.**Upright Perennial Brome-grass.*

*B. paniculâ erectâ*; pedunculis subsimplicibus, flosculis lanceolatis teretiusculis, foliis radicalibus angustissimis ciliato-pilosis.

*Bromus erectus.* *Huds.* 49. *ed.* 1. 39. *With.* 160. *Sibth.* 47. *Relb. Suppl.* 2. 8. *Eng. Bot.* t. 471:

*B. agrestis.* *Allion. Ped.* V. 2. 249.

*B. perennis.* *Villars Dauph.* V. 2. 122.

*B. n.* 1507. *Hall. Hist.* V. 2. 237. *Davall.*

*Festuca avenacea sterilis spicis erectis.* *Raii Syn. ed.* 1. 237. *ed.* 2. 261. *ed.* 3. (exclusis synonymis) 413.

Gramen

Gramen bromoides pratense, foliis præter culmum angustissimis, rarâ lanugine villosus. *Scheuchz. Agr. 255. t. 5. f. 13.* From a specimen named by Scheuchzer himself in the Sherardian collection.

G. bromoides paniculatum, foliis et culmo villosis. *Scheuchz. Agr. 257.* according to the opinion of Sherard.

G. quod Festuca pratensis lanuginosa C. B. *Vaill. Paris. 93. t. 18. f. 2.* The synonyms very much confused.

G. avenaceum glabrum, paniculâ purpuro-argenteâ splendente. *Mor. V. 3. 213. n. 20. Herb. Bobart.*

G. loliaceum, locustis longis aristatis. *Mont. Prod. 35. f. 2. Herb. Sherard.* But the synonyms of Ray and Morison quoted by Monti are wrong.

G. sparteum, longâ et spicatâ paniculâ, Lolii utriculis, Festucæ potius, majus. *Barrel. Ic. t. 13. f. 1.*

In pascuis arenosis, cretâ substratis. Fl. Julio.

In the hedges beyond Botley near Oxford. *Bobart.* Ditchley Park. *Mr. Woodward.* Holkham, Norfolk. *Mr. Crowe.*

*Radix* perennis, fibrosa, cæspitosa, fibris villosis, fuscis. *Culmus* ferè tripedalis, erectus, strictus, simplex, teres, glaber (rariùs pubescens), ultra medium foliosus, geniculis circiter quatuor. *Folia* lineari-lanceolata, acutiuscula, striata, lætè viridia, scabra; radicalia angustissima, pilis longis albis sparsis adscendentibus ciliata, subinde involuta. *Vaginæ* striatæ, glabræ. *Stipula* brevissima, erosa. *Panicula* erecta, ramis erectis, scabris, numero et longitudine variis, simplicibus, rariùs bifloris. *Spiculae* lineari-oblongæ, compressæ, erectæ, purpurascens, vel glabræ vel tomentosæ. *Glumæ calycinæ* lanceolatæ, acutæ, carinatæ; interiore majore, trinervi. *Flosculi* 5 ad 9, imbricati, lanceolati, compresso-teretius-

culi, subangulati, carinati, obsolete nervosi, carinâ scabri; aristis longitudine vix glumarum, parùm infra apicem membranaceum exortis, rectis, scabris. *Glumæ interiores* apicem versùs minutè pectinato-ciliatæ ciliis ascendentibus, minùs quam in maximâ parte Bromorum conspicuis. *Anthææ* crocæ. *Semen* lineari-oblongum, supra fulcatum, apice villosum.

The specimen of this *Bromus*, that ranks first in authority, exists in the Sherardian herbarium, and is thus inscribed in Sherard's hand:

"Festuca avenacea sterilis, spicis erectis, D. Bobart. Synops. App. This was first found by me, and given to Mr. Bobart. Folia inferiora pilis longis obsita."

Under these very words it appears in the second edition of Ray's *Synopsis*; but, in the third, Dillenius has added synonyms of Plukenet and Morison, which belong to a widely different plant *B. muralis* of Hudson, *madritensis* of Linnæus, *diandrus* of Curtis, under which last name I shall presently describe it. Mr. Hudson however copies those synonyms under his *B. erectus*, adding, with a query indeed, *B. racemosus* of Linnæus; so that he includes under *erectus* three species, and, if his variety  $\beta$  be the real *arvensis*, even four. Other Botanists in the time of Dillenius seem to have confounded *B. erectus* and *diandrus*; and that circumstance perhaps led him into the same error. The latter species in Buddle's herbarium has the denomination *Festuca avenacea sterilis spicis erectis, D. Bobart*, which we have just proved to belong to the former, while there are three most distinct grasses, one of them *B. erectus* with downy glumes, in the same herbarium under the true synonym of *B. diandrus*, as will be shewn presently, not one of which is the real *diandrus*. Buddle has also the *erectus* in another place, with smooth glumes, with the synonym in Ray's *Synopsis*, which belongs

belongs to *B. arvensis*, as above quoted. So in the Sherardian herbarium, along with authentic specimens from Scheuchzer and Monti of *B. erectus*, with their own names for it, are various others, some with downy glumes, others with smooth ones, to which Sherard has applied such a mass of confused synonyms from the Bauhins, Ray and Tournefort, that they only serve to shew he had really no clear ideas upon the subject, and that his authority, like that of too many other Botanists, is not to be implicitly relied on in matters of opinion or criticism, however valuable in the case of original specimens of plants found or described by himself.

With respect to Vaillant, his figure leaves no doubt of *B. erectus* being the plant he intended, though it may or may not be the *Festuca pratensis lanuginosa* of Bauhin; and his other citations are obscure, those of Ray certainly wrong.

*Bromus erectus* is easily known by its black perennial downy root, erect panicle and spikes, and especially by the radical leaves being much narrower than those on the stem, perfectly linear, and remarkably ciliated with distant long white hairs, pointing upwards. The accurate Mr. Swayne, as well as Mr. Woodward, has noticed its affinity to *Festuca*, to which genus I might have been tempted to remove it, on account of the perennial root, and the inner glume of the corolla being downy rather than pectinated. The *arista* however being, although a direct continuation of the *carina*, not strictly terminal, as the glume separates from it on each side, but more especially the great affinity between this grass and *Bromus asper*, an indubitable *Bromus*, make me retain it in that genus.

8. BROMUS *asper*.

*Hairy Wood Brome-grass.*

*B. paniculâ nutante ramosâ, flosculis lanceolatis teretiusculis sub-  
enerviis, foliis uniformibus: inferioribus hirsutis.*

Bromus

- Bromus asper.* Linn. *Suppl.* III. *Witb.* 161. *Mart. Fl. Ruft. t.* 126.  
*Retz. Prod. ed.* 2. 25.
- B. ramofus.* Linn. *Syft. Veg. ed.* 13. 102. (nec *Mant.* 34). *Hudf.*  
*ed.* 1. 40.
- B. nemoralis.* *Hudf.* 51.
- B. nemorofus.* *Villars Dauph. V.* 2. 117.
- B. hirsutus.* *Curt. Lond. fasc. 2. t.* 8. *Relb.* 48. *Sibth.* 48.
- B. montanus.* *Pollich. V. I.* 116. *Retz. Obf. fasc. 2.* 7.
- Poa paniculâ nutante, laxâ, fpicis oblongis, multifloris, sæpe ariftatis.*  
*Gmel. Sib. V. I.* 110. *t.* 21. *Herb. Linn.*
- Gramen avenaceum dumetorum, paniculâ fparsâ.* *Raii Syn.* 415.
- G. avenaceum dumetorum, jubâ longiore, fpicâ divisâ.* *Morif.*  
*Señ. 8. t. 7. f.* 27.

In nemorofis et fepibus, humidiusculis. Fl. Julio.

*Radix* annua vel biennis, fibrofa, fibris craffiusculis, horizontalitèr patentibus, lævibus. *Culmus* 4- vel 5-pedalis, erectus, teres, striatus, foliofus, supernè glaber, fub trigeniculatus. *Folia* patentia, plana, acuta, nervofa, afpera atque pilofa, latitudine omnia ferè æqualia. *Vaginæ* teretes, vix carinatæ, nervofæ; inferiores pilis deflexis hirsutiffimæ. *Stipula* brevis, lacera. *Panicula* pedalis, nutans, multiflora; ramis ramulifque plerumque binatis, elongatis, nutantibus, afperis. *Spiculæ* lineari-oblongæ, pendulæ, fufco-virides, fubpubefcentes. *Glumæ calycinæ* valdè inæquales, lanceolatæ, carinatæ, fcabræ; majori trinerviâ. *Flofculi* circitèr novem, imbricati, demùm laxè patentès, lanceolati, teretiusculi, carinati, obfoletè trinerviî, carinâ præcipuè afperi, margine fcariofo, fub apicem ariftati, ariftâ glumis breviorè; *glumæ interiores* crebriùs ciliatæ, margine fcariofo, inflexo. *Semen* fulco exaratum.

No difficulty attends this species, except what arises from the number of names that have been given it, owing to Linnæus having by accident called another *B. ramosus*; so that this requiring a new name, every person gave one according to his fancy. It is easily distinguished from the preceding, to which, though no one has yet compared them, it is most nearly a-kin; but its annual, or at most biennial, pale smooth root, broad uniform hairy leaves, and branched drooping panicle, characterize it sufficiently. Authors have laboured to distinguish it from *B. giganteus* of Linnæus, some having most carelessly considered them as the same species. In that however the root is perennial, the spikes small, florets fewer, nearly ovate, scarcely carinated, their inner valve though rough not ciliated, and their *aristæ*, as Villars well observes, terminal, for which two last reasons particularly I have ventured to remove it to the *Festucæ*.

9. *BROMUS sterilis.*

*Barren Brome-grass.*

*B. paniculâ nutante subsimplici, flosculis lanceolatis nervosis fulcatis, foliis pubescentibus.*

*Bromus sterilis.* *Linn. Sp. Pl.* 113. *Huds.* 50. *With.* 162. *Relb.* 46. *Sibth.* 47. *Curt. Lond. fasc.* 1. t. 9. *Mart. Fl. Rust.* t. 125. *Leers* 37. t. 11. f. 4. *Ger. em.* 76.

*Festuca avenacea sterilis elatior, seu Bromos Dioscoridis.* *Raii Syn.* 412.

*F. graminea annua sterilis, spicis dependentibus.* *Morif. Sect.* 8. t. 7. f. II.

In arvis, ruderatis et sepibus vulgaris. Fl. Junio, Julio.

*Radix*

*Radix* annua, fibrosa, parva, fibris capillaribus. *Culmus* sesquipedalis, erectus, gracilis, teres, striatus, ad apicem usque foliosus, geniculis 5 vel 6. *Folia* patentia, plana, subflaccida, angusta, acutiuscula, nervosa, utrinque mollissimè pubescentia, margine scabriuscula. *Vagine* cylindricæ, nervosæ, mollissimè villosæ, pilis parùm deflexis. *Stipula* oblonga, lacera. *Panicula* spithamæa, nutans; ramis sæpiùs ternis, elongatis, nutantibus, asperis, simplicibus, vix unquam bifloris. *Spiculæ* lanceolatae, pendulæ, fusco-virentes, scabræ. *Glumæ calycinae* maximè inæquales, lanceolatae, scabræ; majori angulatâ, nervosâ. *Flosculi* 6 ad 8, imbricati, demùm patentiusculi, lanceolati, compressi, carinati, asperi, 7- vel 9-nervi, nervis duobus submarginalibus maximis, inter nervos fulcati atque subpubescentes, apice ipso ferè aristati, aristis glumâ longioribus, scabris; *glumæ interiores* fetis raris pectinatæ, margine scarioso inflexo. *Stamina* tria. *Semen* fulco exaratum.

This common *Bromus* is readily known by its drooping, almost simple, flower-stalks, and narrow downy leaves. The strong nerves of the glumes, a part hitherto generally much neglected in grasses, are remarkable in this and the next species.

#### 10. BROMUS *diandrus*.

*Upright Annual Brome-grass.*

B. paniculâ erecto-patente subramosâ, flosculis lanceolatis nervosis fulcatis diandris.

*Bromus diandrus.* Curt. Lond. fasc. 6. t.

B. madritensis. Linn. Sp. Pl. 114. With. 161.

B. muralis. Hudf. 50. Sibth. 48.

B. ciliatus. Hudf. ed. 1. 40.

B. sterilis,

- B. sterilis, erectâ paniculâ, major. *Barrel. Ic. t. 76. f. 1.*  
 Festuca avenacea sterilis, paniculis confertis erectioribus, aristis brevioribus. *Raii Syn. ed. 2. 261. Pluk. Phyt. t. 299. f. 2. Herb. Sherard.*  
 F. avenacea sterilis, pediculis brevioribus et spicis erectis. *Morif. V. 3. 212. n. 13.—et F. graminea annua, spicis erectis. Ejusd. Sect. 8. t. 7. f. 13. Herb. Bobart.*  
 Gramen bromoides pumilum, locustis erectis, majoribus aristatis. *Scheuchz. Agr. 260. Sent by Scheuchzer himself to Sherard.*

In arenosis et ad muros passim. Fl. Junio.

Common on the sandy grounds in Jersey. *Sherard.* At the foot of St. Vincent's rock, Bristol, on the farther part near the meadows. *Sir J. Banks, Bart. Near Battersea. Curtis.*

*Radix* annua, fibrosa, parva. *Culmi* pedales vel sesquipedales, erecti, stricti, graciles, teretes, striati, glabri, foliosi, geniculis plerùmque tribus. *Folia* præcedentis, at minùs pubescentia, sæpè omninò glabra. *Vaginæ* nervosæ, subcarinatæ, sæpiùs glabræ, quandòque pilosæ, pilis deflexis. *Stipula* brevis, erosa. *Panicula* vix triuncialis, erecta, fastigiata; ramis ternis, quaternis, quinifve, scabriusculis, plerùmque simplicibus, brevibus, unifloris, solo fertiliore tantùm elongatis et ramosis, semper tamen erectis vel erectiusculis, nunquam pendulis. *Spiculæ* lineari-lanceolatæ, erectæ, sæpiùs fuscescentes, scabræ. *Flosculi* præcedentis, sed diandri, minùsque argutè nervosi, nervis duobus lateralibus approximatis præcipuè conspicuis.

The essential character of this species consists in its flower-stalks being short and erect, leaves almost smooth, glumes much less

strongly nerved than in the last, and especially in its florets having but two stamina, which has been observed by Mr. Curtis, as well as by Dr. Withering who found the same grass in Portugal. I have by comparison proved it the *B. madritensis* of Linnæus; but it being far from peculiar to Madrid, I make no scruple to prefer the expressive name *diandrus*. It is very distinct from the *B. rubens*. Like most plants that live in a sandy soil, it varies greatly as to size.

Great obscurity involves the early synonyms of this grass, inso-much that nothing but the investigation of original specimens could clear it up. The most important of these is one in the Sherardian herbarium, with a ticket inscribed by Sherard, thus: "This I found common on the sandy grounds in Jersey. 'Tis shorter awned than the *Bromus sterilis*, lower and more upright." Hence we learn with certainty that the plant intended by Ray, in the second edition of his *Synopsis*, p. 261. n. 4. is our *B. diandrus*. We learn with equal certainty from the collection of grasses made by Bobart, and referring all through to that part of Morison's *Historia*, of which he was the editor, that he knew it to be the plant of Ray, and that he intended it himself under the name and figure in Morison, to which I have referred above. Dillenius however, strange to tell, in his edition of the *Synopsis*, applies these synonyms to the *B. erectus*; and under the definition which belongs to the *diandrus*, he quotes a passage in Petiver's *Concordia Graminum*, and gives a figure and description of his own, all which apply to *Festuca uniglumis* of Solander, *Lolium bromoides* of Hudson, which is the plant Dillenius found on the coast of Suffex, and, as it appears from Buddle's herbarium, what Mr. Dale gathered in Mersey Island. This error of Dillenius is noticed on a ticket, which accompanies the genuine specimen of *B. diandrus* in the Sherardian collection, on which is written, in a scrawling hand unknown to me,

me, but certainly neither Dillenius's, Sherard's, nor Buddle's, the proper reference to Ray's second edition, and Plukenet, *t.* 299. *f.* 2. with a remark in Latin, that "another grass is exhibited for this in the *Synopsis*," that is in the third edition. Yet with this are two poor specimens of the same grass, marked with the original definition of Bobart, and the reference to the Appendix to Ray's first edition, p. 237, which belongs to *B. erectus*, as I have already mentioned. This is written in a handsome hand, to which I am likewise a stranger. A more complicated blunder exists in Buddle's herbarium. Under the inscription "*Festuca avenacea sterilis, paniculis confertis erectioribus, aristis brevioribus, D. Sherard, Raii Syn. 261,*" are three most distinct and dissimilar plants. In the first place *Bromus scoparius* of Linnæus, next *B. erectus* with downy glumes, and lastly *Festuca uniglumis*, under which last is written (by Buddle as well as the rest) "collectum in ins. Mersea propè Colcestr. a D. Dale, R. H. 1287." So that there is only wanting the real grass to which the said inscription properly belongs. I was once inclined, on this authority, to add *B. scoparius* to the British Flora; but as there is no proof in Sherard's own collection of his having found it in Jersey, we must suppose Buddle had it from some other quarter, and, merely from his own judgment, referred it to the plant of Sherard and Ray.

From the above tedious but necessary detail, I trust the confusion of synonyms between *B. erectus* and *B. diandrus*, which exists in Hudson and all other writers who have touched upon them, will be accounted for, and in some measure excused, though it must be confessed the author of the *Flora Anglica* had the means in his power of clearing it up, had he been sufficiently attentive. It will also appear from the history of such mistakes, which are abundant throughout every British *Flora* we have yet seen, that the comple-

tion of a more perfect one is not the work of a day. Indeed the contemplation of them, and the certainty that in so intricate an undertaking similar errors are scarcely to be wholly avoided, are sometimes sufficient to daunt the most ardent investigator, and make him sensible how much he himself may need the correction and indulgence of future critics.

II. BROMUS *sylvaticus.*

*Slender Wood Brome-grass.*

B. spicâ simplici nutante secunda, spiculis sessilibus teretiusculis, aristis glumâ longioribus, foliis pilosis.

Bromus sylvaticus. *Pollich. V. 1. 118. Pourret Act. Tolos. V. 3. 308.*

B. pinnatus. *Fl. Dan. t. 164.*

B. gracilis. *Weigel Obs. 15. t. 1. f. 11.*

Festuca sylvatica. *Huds. ed. 1. 38. With. 158. Relb. 44. Sibth. 46.*

*Lightf. 103. Mart. Fl. Rust. t. 114. Dickf. H. Sicc. fasc. 13. 9.*

F. pinnata β. *Huds. 48.*

Triticum n. 1432. *Hall. Hist. V. 2. 213.*

Gramen avenaceum dumetorum spicatum. *Raii Syn. 394.*

In dumetis, nemorosis, et sepibus frequens. Fl. Julio.

*Radix* perennis, fibrosa, cæspitosa, fusca. *Culmi* bipedales, erecti, simplices, teretes, foliosi, glabri, apice attenuati et inclinati. *Folia* patentia, latiuscula, acuminata, rigidiuscula, lætè viridia, scabra, nervosa, subtùs præcipuè striata, magis vel minùs pilosa. *Vaginæ* strictæ, striatæ, pilosæ. *Stipula* brevis, obtusa, lacera. *Spica* simplex, nutans, ferè triuncialis, rachi subflexuosâ, striatâ, scabrâ,

scabrâ, hinc canaliculato-compressâ. Spiculæ 6 vel 7, alternæ, sessiles, secundæ, non divaricatæ, linearilanceolatæ, luteo-livides plerùmque pubescentes. Glumæ calycinæ inæquales, lanceolatæ, brevius aristatæ, nervosæ, apicem versùs hirtæ. Flosculi 6 ad 9, imbricati, demùm patentiusculi, subcylindrici, apicem versùs præcipuè nervosi atque hirti. Arista terminalis, glumis plerùmque longior, subulata, scabra. Gluma interior linearis, retusa, fetis erectis rigidis ciliata.

The inner glume being strongly pectinated in this grass and the following one, seems to me a sure indication of their being *Bromi*, and that any thing to the contrary in the insertion of the *arista*, being in many species very difficult to determine, and in some variable, is of less real moment. In habit also these plants agree with other *Bromi* rather than with *Festucæ*, except indeed their perennial roots.

12. BROMUS *pinnatus*.

*Spiked Heath Brome-grass.*

B. spicâ simplici erectâ distichâ, spiculis sessilibus teretiusculis, aristas glumâ brevioribus, foliis nudiusculis.

*Bromus pinnatus.* Linn. Sp. Pl. 115. Hudf. ed. 1. 41. Pollich. V. 1. 117. Weigel Obs. 14. t. 1. f. 10.

*Festuca pinnata.* Hudf. 48. Relb. 44. Sibth. 46. Dickf. H. Sicc. fasc. 13. 8.

*Triticum n.* 1431. Hall. Hist. V. 2. 212.

*Avena læta.* Salisb. Prod. 22.

*Gramen spicâ Brizæ majus.* Raii Syn. 392. Rel. Rudb. 11. f. 2.

*G. sparteum, spicatâ Brizæ paniculâ et corniculatâ.* Barrel. Ic. t. 25.

In campis et ericetis, solo calcareo. Fl. Julio.

Not uncommon in Yorkshire, Oxfordshire and Kent.

*Radix*

*Radix* perennis, fibrosa, subrepens. *Culmus* sesquipedalis vel bipedalis, erectus, simplex, teres, foliosus, glaberrimus, apice rectus et rigens, parùmque attenuatus. *Folia* erectiuscula, lanceolata, acuminata, rigidula, striata, nervosa, scabra, sæpiùs nuda, rariùs suprâ pilosa. *Vaginæ* strictæ, striatæ, glaberrimæ. *Stipula* brevis, obtusa, ciliata. *Spica* simplex, erecta, longitudine varia, rachi subflexuosâ, striatâ, angulis scabrâ, hinc complanatâ. *Spiculæ* 6 ad 10, alternæ, sessiles, distichæ nec secundæ, erectæ, linearilanceolatæ, pubescentes. *Glumæ calycinæ* parùm inæquales, lanceolatæ vel subovatæ, subaristatæ, multinervosæ, margineque præcipuè hirtæ. *Flosculi* 6 ad 12, vel etiam plures, arctè imbricati, subcylindrici, apicem versùs præcipuè nervosi atque hirti. *Arista* terminalis, glumis plerùmque brevior, quandòque etiam brevissima, subulata, scabra. *Gluma interior* retusa, setis erectis ciliata ut in præcedente.

This has been united, by many Botanists, with the last, to which it is certainly nearly allied; but there are several points of difference which seem to keep them distinct. These are the erect distichous spike, the firmer habit, less hairy leaves, and short awns of *B. pinnatus*.